IOP Conference Series: Materials Science and Engineering 2018 vol.412 N1

Energy efficiency of pulsating flows at heat-transfer enhancement in a shell-and-tube water oil cooler

Haibullina A., Sabitov L., Hayrullin A., Ilyin V.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Published under licence by IOP Publishing Ltd. In this paper the energy efficiency of pulsating flows during of enhancement heat transfer in a shell-and-tube water oil cooler was studied. A device for enhancement heat-transfer in an oil cooler based on a hydraulic system and a hydraulic cylinder is developed. A shell side flow of the oil cooler underwent pulsating. A Reynolds number of the oil flow based on the outside diameter of the tube was Re oil = 658, a number of Prandtl Pr oil = 293. It is established that with increasing frequency and relative amplitude of pulsations, an increase in heat transfer commensurate with increasing power consumption. It is shown that the energy efficiency of asymmetric pulsations is higher in comparison with the symmetric pulsations.

http://dx.doi.org/10.1088/1757-899X/412/1/012026

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